

INTERNATIONAL CITY MANAGERS' ASSOCIATION
1313 EAST 60TH STREET - CHICAGO 37, ILLINOIS

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RADIO IN FIRE DEPARTMENTS

How can radio facilities be more effectively used by fire departments?

No city would think of returning to the old days of the foot police patrol when it was necessary to maintain a large reserve riot squad in the various precinct station houses to handle emergencies. Yet this is the form of operation still maintained in almost all fire departments where the men are kept inactive in quarters awaiting box alarms in their section of the city. The fire department, except for a few chief officers' cars, once the major apparatus is out of quarters, is largely out of touch with headquarters until it arrives at the fire alarm box location and reestablishes communication either through a fire alarm box signalling station or through a nearby telephone, or possibly through the radio in a chief's or police car. With the police when an emergency develops it is possible for the central station dispatcher to route cars to the various sections of the city as needed to cover any situation.

Just as the police regularly try shop doors at night and maintain constant patrol, fire company inspectors can bring to the attention of property owners fire hazards such as rubbish accumulation, disregard of care of open fires in incinerators, burning without permits, blocked exits, and dozens of other hazards.

The Federal Communications Commission allocates radio frequencies for fire department use to cities with populations in excess of 150,000, and up to March, 1945, the fire departments of seven cities had been licensed to operate radio facilities: Boston, Detroit, New Haven, New Orleans, New York, Portland (Maine), and Seattle. Three of these cities, Boston, Detroit, and New York, together with San Francisco, have used two-way radio systems in connection with the operation of fire boats for a number of years. Fire boats scheduled to respond to certain of waterfront boxes start immediately on receipt of an alarm. The boat may be recalled by radio, however, if the first officer arriving at the waterfront fire notifies headquarters that the boat is not needed. The recall of the boat may save needless operation of drawbridges and interruption of rail and street traffic where response would involve passage up a river or canal.

For many years the FCC had specified that the emergency needs of fire departments could be met through cooperation with the radio service of police departments, and the fire departments in more than half of the cities with populations over 25,000 have used the police radio (except in seven cities), broadcasting fire alarms on receiving sets installed in the cars of the chief fire officers. Ninety-eight of the 410 cities with populations over 25,000 have put radio equipment on one or more pieces of fire apparatus, according to The Municipal Year Book, 1945. Of these cities, 42 use two-way radio, 37 use on-way, and 19 cities use both one-way and two-way radio.

Fire departments in the larger cities probably should have separate allocations for FM radio, and should not expect to depend upon police radio broadcasting facilities. Each major piece of fire apparatus and the cars of chief officers should be equipped with two-way radio facilities. Radio communication will enable headquarters to keep in touch with apparatus while it is on the way answering an alarm, thus making it possible for headquarters to recall apparatus if it is not needed, or to make reassignments. The radio would enable headquarters to keep in touch with companies which may be out of quarter attending grass or brush fires, or with companies doing inspection work, thus making them available for responding to alarms the same as if they were at the fire station.

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Each company could still be largely available for handling structural fires in their district if radio communication was maintained with headquarters. In other instances where a number of companies respond to a box the last due companies may have runs several miles long, frequently through severe weather conditions. If these companies were equipped with radio the first arriving company or chief could turn back the last due equipment. Such radio facilities would greatly reduce the need of moving companies from station to station in the event of multiple alarm signals in order to cover vacated sections of the city. Under typical operations a considerable number of companies transferred to replace companies responding to alarms may be as long as ten to twenty minutes out of reach of headquarters. Frequently additional alarms are received which would change the covering requirements while numerous companies are still enroute. These companies must still continue to the spots designated on their assignment card in order to re-establish communication with headquarters and then report to their destination. With two-way radio these companies could be rerouted as fast as additional alarms were received. The more extensive use of radio probably will not eliminate the fire alarm box as the initial source of alarm, but it would vastly speed up the giving of calls for additional assistance, and in addition the use of radio makes it possible to give more detailed information to headquarters than is possible over the ordinary fire alarm telegraph circuit where code is used. In Boston, for example, there are recorders on the radio receivers at headquarters that make a record of orders sent in from the radios in the various fire chiefs cars.

One of the most important reasons for putting a radio on every major piece of fire apparatus is to make it possible to utilize all fire companies on a regularly scheduled inspection service which might well eliminate perhaps 50 per cent of all fire calls in the average city. Fire hazards that are now frequently overlooked because the average fire company cannot spare more than an occasional man for district inspection work could be readily eliminated if each fire company spent at least two full days or more a week in systematic block-by-block inspection of its district. This will be entirely feasible as soon as each fire company is equipped with two-way radios perhaps supplemented by walkie-talkie radios. As pointed out in the "Municipal Fire Administration" textbook on page 468 nearly every fire department divides the city into inspection districts with a district assigned to each company. This district is usually considerably smaller than the area in which responses to fires are made, because it is normal to have four to eight companies respond to each alarm of fire sounded over a fire alarm box. By giving each inspection district an alphabetical designation, A-B-C in rotation, it can be arranged so that one third of the fire companies in a city are out of quarters conducting systematic inspections on each weekday, leaving two thirds of the companies in each district in quarters to respond immediately to first alarms of fires. Thus companies with the inspection designation A would be out of quarters inspecting from 9:00 a.m. to 4:00 p.m. Mondays and would see that their district was absolutely cleaned up. Companies with the inspection designation B would be out Tuesdays and companies with C would be out Wednesdays and then the cycle would be repeated.

In this way instead of having only one or two of its personnel engaged in fire prevention routine at such times as they can be spared from the chronically undermanned fire companies, a fire company would systematically cover its district under its own officers and employ its full manpower with the exception of the driver who would stay with the apparatus to receive alarms. If an alarm was received in the first alarm district of a company out on inspection service, the driver would merely sound the siren on the truck and the men would reassemble from the adjacent buildings and would respond with a delay of only a few seconds but, of course, would not be expected to be first at the scene unless the fire happened to be immediately adjacent to the inspection area. The company officer in

charge of the inspection could also be equipped with a walkie-talkie- set so that he could maintain constant communication with the driver who would remain with the fire truck. Thus the six-man fire company would have one man on the truck and five men conducting inspection work. If a city had fifteen fire companies, this would mean that one third of the companies, or five companies, would be on inspection work daily, regardless of weather unless the weather was unduly severe when upon the chief officer's discretion the inspection work would be temporarily suspended. With five companies a day doing inspection work, a city of perhaps 100,000 population would have twenty-five fire department inspectors out from the companies each day, whereas at the present time they may have only a mere handful of men on occasional inspection work.

Companies on inspection work could take their regular apparatus along and leave the driver with the apparatus so as to maintain radio communication and to prevent tampering with the equipment. Of course, it would be desirable when purchasing new fire apparatus to get equipment with enclosed cabs to protect the radio and to make it possible for the operator to remain with his equipment in the cab on normally cool days.

As long as it is necessary to maintain fire companies in quarters in every part of the city awaiting potential fires, it will be difficult to cut the working hours as much as might be desired because of the economic problem involved. As soon as the fire service is converted to an active fire prevention agency with the finest possible fire fighting equipment always available, the nature of the job will radically change and firemen will receive much better recognition and more favorable conditions of employment, including hours worked. In the first place they will have a chance to meet the public and impress the public with the importance of this service. Eventually the evolution of a radio district fire service should result in a reduction in the working hours for firemen. It might, however, be agreed that in the event of unusual situations and multiple alarms a certain part of the off-duty men would be called back to man reserve apparatus. Of course, at night when it is recognized that the life hazard is the greatest, no company would be out on inspection work, and therefore the entire night shift would be in quarters available for instant response. However, the use of one-third of the day force for inspection work might achieve such revolutionary results that it would be possible to increase the inspection detail to perhaps fifty per cent of the active companies in the daytime as reduced daytime assignments are permitted by the National Board of Fire Underwriters grading schedule. New York, Chicago, and other cities have already successfully employed the idea of reduced daytime responses, but as yet these companies are retained in the stations as reserves rather than employed for fire prevention activities.

Among the cities which have made effective use of the radio are Austin, Texas, and Fort Collins, Colorado. Prior to the beginning of World War II Austin was able to reduce the actual time of fire companies out-of-service by 37 per cent, using the police radio system with broadcasts to fire officials made direct from the fire alarm office, which is connected by means of telephone wires to the police broadcasting station. The system is so interlocked that neither department may interfere with the other. The radio is used in informing police patrol cars the location of fires so that they may direct traffic. Immediately upon arrival at the scene of a fire all companies that are not needed are immediately reported back in service by the commanding officer and are available for alarms in their district, as though they were back in their own station. Fort Collins uses the two-way radio to enable a small force to send out 50 per cent of its strength on inspection work and yet maintain full manpower for firefighting details.

(NOTE: This report has been prepared with the cooperation of Warren Y. Kimball of the National Fire Protection Association. The NFPA offers to assist cities in working out some of the details in putting this suggested plan into operation.)

